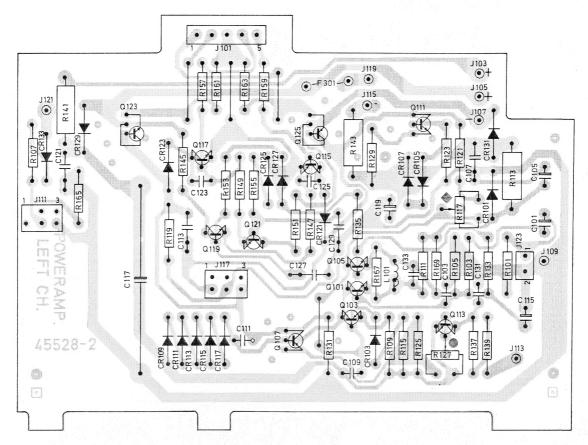
# TANDBERG Power Amplifier 3003 Circuit Diagram, and

# Circuit Diagram and Alignment Instructions

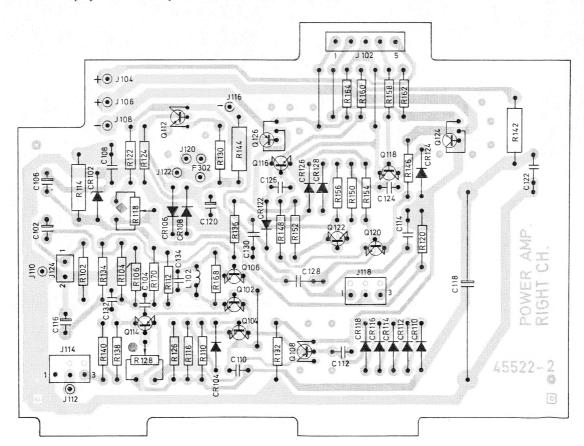


TANDBERG — The European Alternative

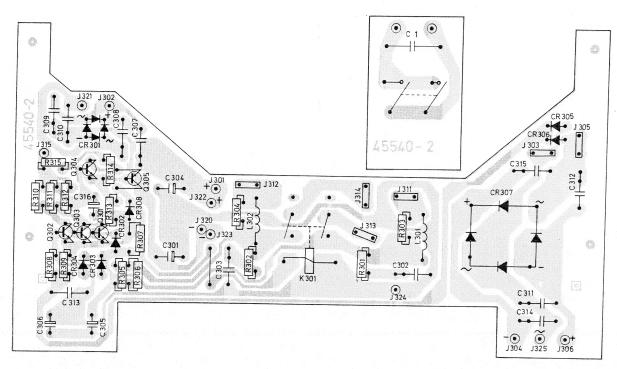
#### ALL BOARDS ARE SEEN FROM THE SOLDER SIDE



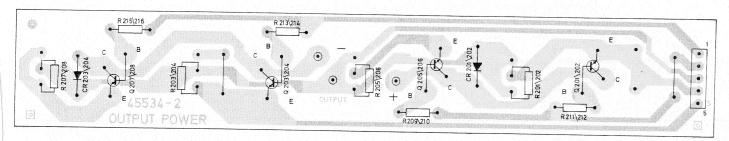
Power amplifier board, left channel



Power amplifier board, right channel



Power supply board



Output power amplifier board

#### Adjustments

#### Quiescent current

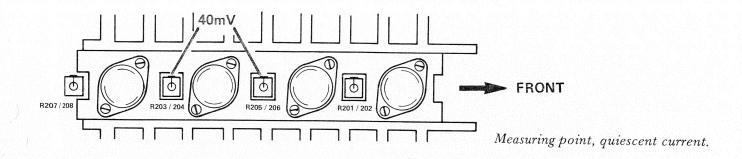
#### Test condition:

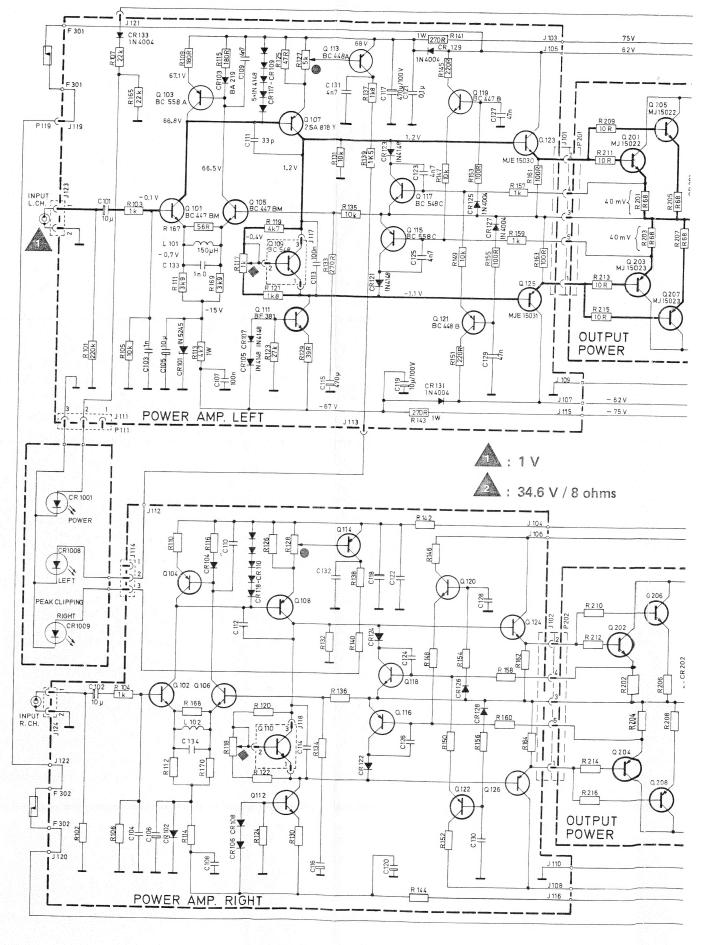
Approx. 10 min. warming up time from *cold* condition without signal applied.

- Connect a VTVM across R203/R204 for left/right channels respectively, i.e. between the top terminals of R203 and R205/R204 and R206, see figure.
- Adjust R117/R118 ( ) for 40 mV reading on the VTVM.

#### Peak clipping

- Connect an oscilloscope to left/right speaker output across 8 ohms load.
- Apply a 1 kHz signal and drive the amplifier to just below clipping point.
- Adjust R127/R128 ( ) so that the Peak Clipping indicators on the front lights up. Then fine adjust the potentiometers down until the lights just goes off.

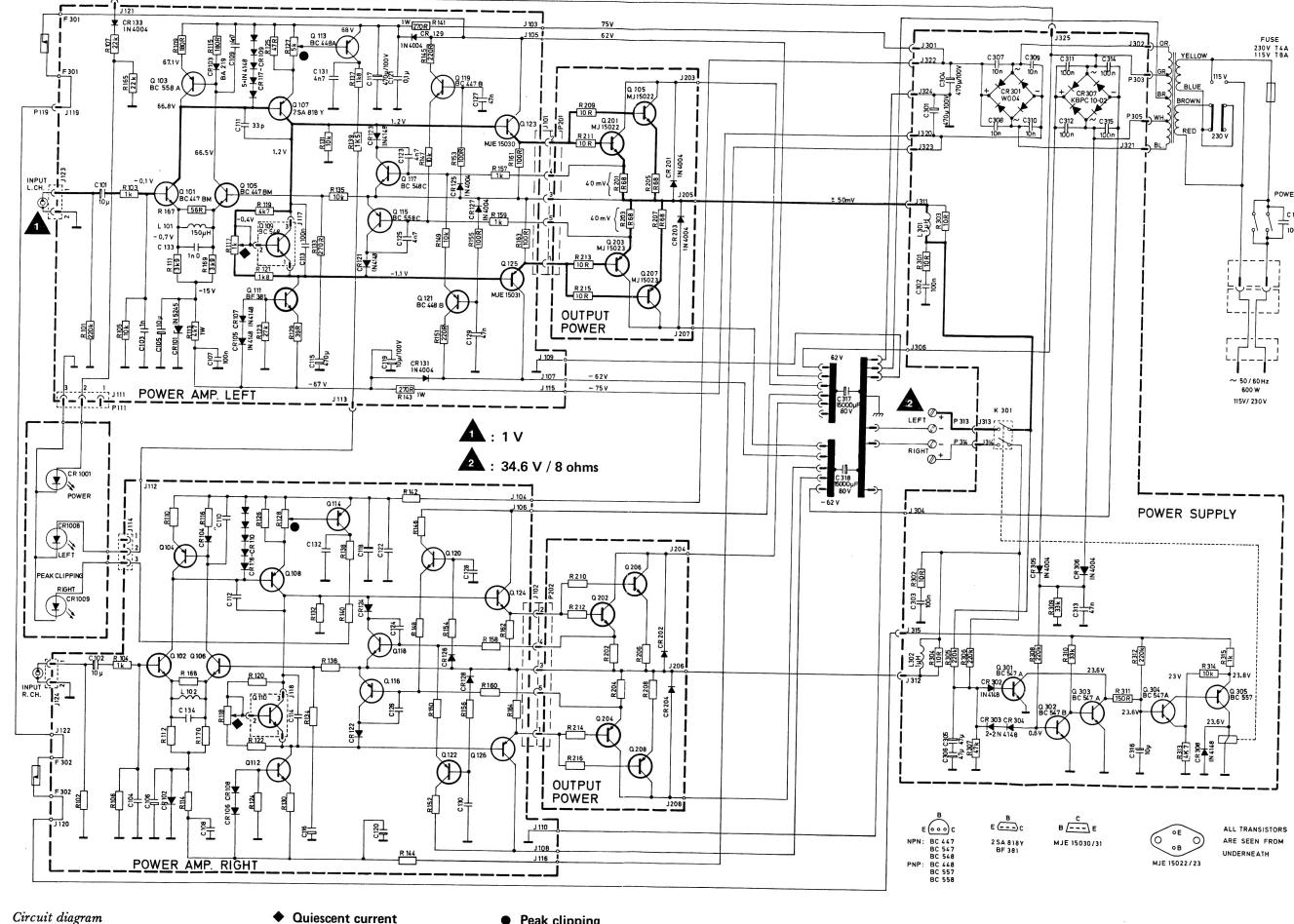




Circuit diagram

Quiescent current

Peak clipping



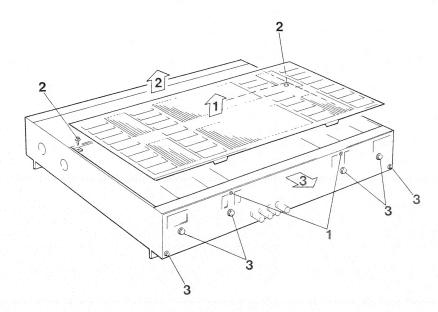
rrent.

Quiescent current

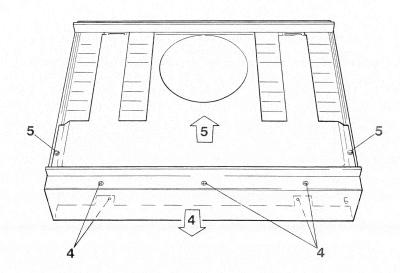
Peak clipping

#### Dismantling

- Top cover, rear (1)
- Front panel (4)
- Top cover, front (2)
- Bottom cover (5)
- Rear panel (3)



Dismantling the rear and top covers.



Dismantling the front and bottom covers.

#### Service hints

#### Checking the shortcircuiting protection circuit

- Connect an oscilloscope across R203/R204 for left/right channels respectively, i.e. between the top terminals of R203 and R205/R204 and R206 see figure.
- Shortcircuit the output terminals (+ to -).
- Apply a signal of 0.1 V to the input terminals.

Tar

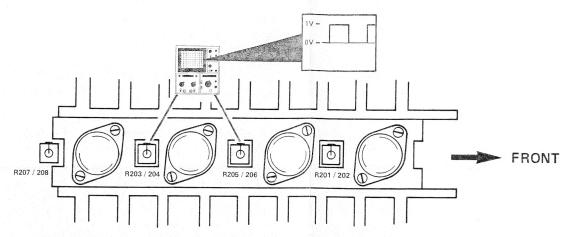
Dim

Ter

Sec

Diff

• The oscilloscope should then show the following picture:



Checking the shortcircuiting protection circuit.

#### Checking the speaker protection relay

If some fault occurs in the output power circuits, causing d.c.-voltages at the speaker outputs the relay should disconnect the speakers to prevent damage.

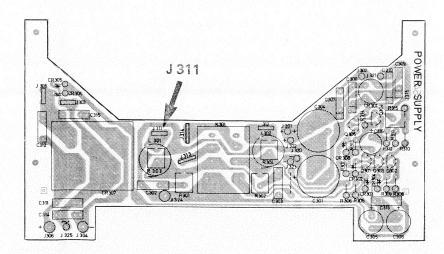
- Disconnect white wire from the output transistors at terminal J311, see figure.
- Disconnect speaker load.
- Apply 6 to 8 V d.c. (+ and alternately) to J311. The relay should then open.

### What to check after replacement of power transistors

After having replaced a defective power transistor the following components should be checked with an ohmmeter and replaced if necessary.

The component numbers refer to the left channel.

R157/159	O109
R161/163	Q123/125/115/117
R209/211/213/215	ĈR109−117
R201/203/205/207	CR121/123

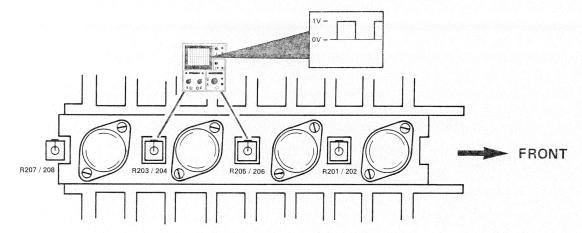


The power supply board seen from the component side.

#### Service hints

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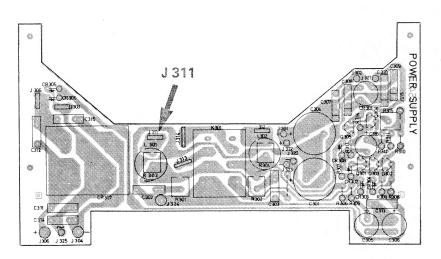
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The power supply board seen from the component side.

#### Tandberg Power Amplifier TPA 3003

#### Technical Data

ower requirements: 115/230 V ± 10%, 50/60 Hz

Power consumption: 50 - 770 W

mensions: Width: 17 1/8" (43.5 cm)

Depth: 13 %" (35.0 cm)
Height: 3 %" (8.3 cm)
Weight: 25 lbs (11.3 kg)

#### Technical Data according to IHF-A-202, 1978

Continuous Average Power Output:

(8 ohms, 20 - 20,000 Hz, THD  $\leq 0.02\%$ ) 2 x 150 W

Dynamic Headroom:

0.35 dB

Frequency Response:

20 - 20,000 Hz, + 0/- 0.2 dB

Sensitivity:

1 V

A-weighted Signal-to-Noise Ratio:

(Ref. 1 W/8 ohms)

98 dB

#### Secondary Disclosures

Wideband Damping Factor

Clipping Headroom: 1.05

Output Impedance (20 - 20,000 Hz):

100

Low Frequency Damping Factor:

or: 200 rtion: 0.02%

SMPTE Intermodulation Distortion:

IHF Intermodulation Distortion: 0.02%

Transient Overload Recovery Time:

Immeasurable

0.08 ohms

Reactive Load Factor:

1.2

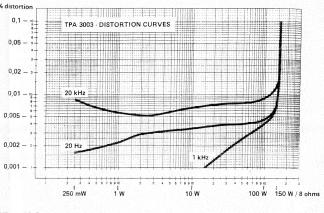
Reactive Load Rating:

Separation

0.8 dB

Difference of Frequency Response:

> 75 dB < 0.1 dB



Total harmonic distortion versus output power

#### Other Technical Data

Frequency Response:

5 - 100,000 Hz, + 0/-1.5 dB

Output Impedance (20 - 1000 Hz):

0.04 ohms
> 70 V/us

A-weighted Signal-to-Noise Ratio:

(Ref. 150 W/8 ohms)

Slew rate:

120 dB

 Specifications are subject to change for further improvement without notice.

#### Optional Extras

- Black acrylic side walls for freestanding units.
- Attachment sets for installation in 19 inch racks.



Tandberg A/S, Post Office Box 55, Bogerud, N-Oslo 6, Norway